DEPARTMENT OF THE INTERIOR UNITED STATES GEOLOGICAL SURVEY

Base by U.S. Geological Survey 1956

RECONNAISSANCE BEDROCK GEOLOGIC MAP OF THE

GEOLOGIC SECTION SHOWING THRUST SEQUENCES

THRUST SEQUENCE 1

THRUST SEQUENCE 1

GINNY CREEK Zn-Pb-Ag DEPOSIT

PLATE 1 U.S. GEOLOGICAL SURVEY OPEN FILE REPORT 79-1092

GEOLOGIC MAPS

The geologic maps of the Nimiuktuk barite deposit and the Ginny Creek Zn-Pb-Ag deposit occur in an area which is affected by flat thrust faults with tens of kilometers movement. Total displacement has been great enough to superimpose different sedimentary facies in coeval rock units. This is especially true of Mississippian rocks which were deposited as a variety of different sedimentary rock types. Each thrust sheet can be grouped into one of various named thrust sequences consisting of rock units that range in age from Upper Devonian or Mississippian to Lower Cretaceous (with the exception the Misheguk Mountain thrust sequence which is postulated by Patton and others (1977) to be an ophiolite). Most thrust sequences are distinguished from the others by differences in lithology of Mississippian rock units, but there are also subtle differences in Mesozoic rocks. Rock units, but there are also subtle differences in Mesozoic rocks. Rock units symbols are numbered on each map for easy identification of the thrust sequence. There are 9 thrust sequences which can be mapped in the Misheguk Mountain quadrangle, but only portions of 5 thrust sequences appear on these geologic maps. The numbering system for thrust sequences is intended to be consistent with the geologic map of the Misheguk Mountain quadrangle currently being compiled by the authors. Thrust sequences 1, 2, 3, 5, and 9 appear on the maps of this report. If individual map units are colored by the numbers, a thrust sequence map 'will result; if they are colored by letter symbols, a rock unit (geologic) map will result.

Contact, dashed where approximately located

Fault, dotted where concealed

Major thrust fault between thrust sequences, dashed where approximately located, dotted where concealed, sawteeth on upper plate

Minor thrust fault which occurs within a thrust sequence, dashed where approximately located, dotted where concealed, sawteeth on upper plate

Anticline, showing trace of axial plane and plunge of axis, dashed where approximately located

Overturned anticline, showing trace of axial plane and plunge of axis

Syncline, showing trace of axial plane and plunge of axis, dashed where approximately located

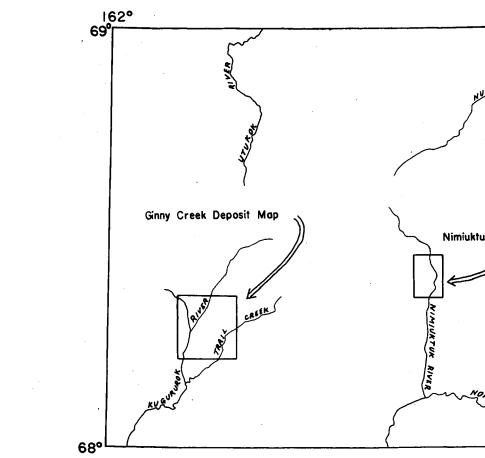
Strike and dip of inclined beds

Apparent strike and dip of inclined beds

GEOLOGIC MAP SYMBOLS

Areas of observed zinc and lead sulfides at Ginny Creek deposit

Queried outcrops are plotted mostly from aerial photographs and have not been investigated in the field



LOCATION OF GEOLOGIC MAPS IN THE MISHEGUK
MOUNTAIN QUADRANGLE

RECONNAISSANCE BEDROCK GEOLOGIC MAP

OF THE NIMIUKTUK BARITE DEPOSIT

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THRUST SEQUENCE 3

THRUST SEQUENCE 3

THRUST SEQUENCE 3

THRUST SEQUENCE 1

THRUST SEQUENCE 1

SCALE 1:63 360

1 1/2 0 1 2 3 4 5 MI

1 .5 0 1 2 3 4 5 KILOMETERS

CONTOUR INTERVAL 200 FEET

CONTOUR INTERVAL 50 FEET IN SOUTH HALF OF GINNY CREEK DEPOSIT MAP

This report is preliminary and has not been edited or reviewed for conformity with Geological Survey standards and nomenclature.

SURFICIAL DEPOSITS

Quaternary

Qal Alluvial deposits

Qu

Undifferentiated surficial deposits, includes tundra, soil, lacustrine, talus, and glacial deposits.

DESCRIPTION OF ROCK UNITS

			4		racuser rice, corresponding gracial supported	
						, :
						•
1	2	3	5	9	ALLOCHTHONOUS ROCKS NOT ASSIGNED	
BROOKS RANGE THRUST SEQUENCE	KURUK CREEK THRUST SEQUENCE	KELLY RIVER THRUST SEQUENCE	IPNAVIK RIVER THRUST SEQUENCE	MISHEGUK MOUNTAIN THRUST SEQUENCE	A SPECIFIC THRUST SEQUENCE	,
		· ·	KJos		КЈо	Lower Cretaceous
KJ ₀₁		KJo3 Okpikruak Formation	Okpikruak Formation		Wacke and mudstone.	and
Okpikruak Formation Gray mudstone with minor amounts of thin-bedded wacke.		Interbedded wacke and mudstone; local conglomerate contains classs of	Interbedded wacke, conglomerate, and mudstone; conglomerate contains clasts of chert, mafic rocks, granite, and limestone; unit has variable thickness.		·	Upper Jurassic
Unconformity		Buchia; unit has variable thickness. Unconformity	Unconformity		Unconformity [JRm]	lurassis and
One of first first			J Rms	Jug	Mafic volcanic agglomerate, crops out on lower Trail Creek.	Jurassic and Upper Triassic?
			Diabase sills and dikes; mostly consist of plagioclase and augite.	Ultramafic rock, mostly peridotite, may include minor amounts of pyroxenite, dunite, and gabbro.		}
F. K.		Rc3			R Pc Ps	
υ <u>Rc1</u> μα Ps1		R Pc3		,		
		Rc3-Gray and well-bedded chert, has few siliceous shale partings, weathers to gray, brown, or cream-colored surfaces; contains Triassic			RPC-Gray chert, few siliceous shale partings; contains radiolaria. Siksikpuk Formation	
Upper part of section contains Triassic pelecypod, Monotis, weathers to cream-colored bed surfaces, and commonly has a few carbonate beds;		radiolaria; unit is about 30-40 m thick at exposure east of Trail	·		Ps-Maroon and gray shale; few gray chert beds contain variable amounts of radiolaria.	Triassic
Tc:-Light gray to dark gray chert, has thin siliceous shale partings. Upper part of section contains Triassic pelecypod, Monotis, weathers to cream-colored bed surfaces, and commonly has a few carbonate beds; lower part of section has 5 m interval of black chert which resembles Mississippian chert. Beds have variable concentrations of radiolaria; unit probably about 20-40 m thick.		Creek.				and
		TAPC3-Undifferentiated Permo-Triassic gray chert with siliceous shale partings; contains radiolaria.				Permian
Siksikpuk Formation Psi-Gray chert and gray, olive, and maroon siliceous shale. Middle part of section is mostly shale which grades both up and down into well-bedded gray chert with thin siliceous shale partings; beds have variable concentrations of radiolaria; unit is probably 30-40 m thick.				, i		
TPC:-Undifferentiated Permo-Triassic gray chert with minor amounts of shale; may include portions of Siksikpuk Formation.	•					
may include portions of Siksikpuk Formation.						
					, , , , , , , , , , , , , , , , , , ,) }
Msc1	Mc2	Mta	Mcs		Mc_	
<u></u>	and the state of the cilicons black shale partings; beds	Tupik Formation	Black well-bedded chert, commonly bleached white near contracts with diabase sills, has few small limestone beds; thickness uncertain		Black well-bedded chert.	
Msci-Black carbonaceous shale with lesser interpretated limestone. Chert beds of gray to dark gray, medium- to fine-grained limestone. Chert preforminates over shale in top 10 m of unit; contains radiolaria.	Black chert, well-beddy, lew sinteeds white-weathering rind on have variable amounts of radiolaria, local white-weathering rind on bed surfaces; unit is about 40-60 m thick.	Interbedded light gray limestone and black chert; unit may be as much as 20-40 m thick in the Nimiuktuk area.	because of structural complexities.		,	
Msci-Black carbonaceous shale with lesser interbedded black chert, has few beds of gray to dark gray, medium- to fine-grained limestone. Chert predominates over shale in top 10 m of unit; contains radiolaria. Upper contact with Siksikpuk Formation is prominent orange and yellow weathering clay rich horizon (bentonite?) that has regional extent. Unit is probably more than 40 m thick.			r			
onto ta property					· .	
My-Felsic volcanic rock. Biotite latite or andesite in Nimiuktuk River map area; porphyritic biotite latite or tuffaceous sediments in Ginny Creek map area. Volcanics are in uncertain position but probably in						
Creek map area. Volcanics are in intertain positions; sparse map upper part or top of black shale and chert unit (Msc1); sparse map distribution suggests volcanics were produced by localized eruptions. K-Ar date from biotite in volcanics west of Nimiuktuk River is			1		·	
K-Ar date from blottle in volcanics west or will under Kivel 13 ± 17 m.y.						
	M	Mkos				
MI	Black fine-grained limestone, weathers light gray; well developed platy	Konnuk Formation				Mississippian
Lisburne Group Gray medium-grained limestone with black chert nodules and lenses, resembles Alapah, Wachsmuth, and Kogruk Formations. Recognized only	beds .3-5 cm thick; unit is about 5 m thick.	Common fossils are corals, crinoids, brachiopods, and foraminifera;				Milosiosippian
from one group of outcrops in the south central part of dring order		eastward to about 30 m near the Nimiuktuk River.				
deposit; thickness uncertain but probably less than 20 m.						
Mk_1	_					
Kavak Shale	Ms2	Mk3 Mu3	:			
Black shale with interbedded rusty weathering fossiliferous limestone	Black shale, few thin fine-grained limestone and black chert beds, thin-bedded; unit is less than 10 m thick and bounded at base by	Kayak Shale Mk3-Black to dark gray shale with few thin orange-weathering limestone beds and ironstone concretions. Unit is less than 20 m thick with				
and pyritic frontione contractions, locary to the stone and sandstone beds; common fossils include crinoids, brachiopods, and bryozoa. Thickness of unit is probably controlled by faults and ranges from 10 m to greater than 40 m.	thrust fault at only exposure west of Kugururok River.	fault at base.				
		Utukok Formation Mu3-Buff-weathering limestone, sandy limestone, and sandstone, few thin		, ,,,		
Mu1		gray shale beds. Contains numerous brachiopods, gastropods, pelecypods, and crinoids; exposed thickness more than 150 m, fault contact at base.				
Utukok Formation Gray coarse-grained limestone with local interbeds of sandstone; locally contains numerous crinoid and brachiopod fragments.	· .				,	
locally contains numerous crinoid and brachlopod fragments. Gradational at base into Noatak Sandstone; unit is approximately 20 m thick at Ginny Creek deposit.						}
MDn1		Dba				
Noatak Sandstone Interbedded sandstone, siltstone, and shale, local sandy calcareous		Reduct Chaup		<u> </u>		Devonian
Interbedded sandstone, slitstone, and shale, local sainly claims beds have fragments of crinoids and brachiopods. Sandstone and slitstone beds commonly rusty weathering; unit is probably greater than		Light gray limestone and dark gray dolomite, few zones of buff-weath- ering medium to thin-bedded limestone and minor shale in upper part;				
200 m thick.		upper part of unit are crinoids and brachiopods; from lower part of unit are stromatoporoids, brachiopods, and corals; unit is more than			meta	Mesozoic?
-	ř	700 m thick west of Kugururok River-		. See	Metamorphic rock, consists of quartz-muscovite-chlorite-garnet	or
					schist, marble, and actinolite-albite-chlorite schist probably derived from pelitic sediments, limestone, and mafic igneous rock.	Paleozoic?
				·		,

RECONNAISSANCE GEOLOGY OF THE GINNY CREEK ZINC-LEAD-SILVER AND NIMIUKTUK BARITE DEPOSITS, NORTHWESTERN BROOKS RANGE, ALASKA

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